

REMARKS/ARGUMENTS

I. Status of the Application and Summary of the Office Action

Claims 1-39 are pending in this case.

The Examiner rejected claims 1-9, 12, 15-23, 25-27, 31-34, and 38 as being unpatentable under 35 U.S.C. § 102(e) in view of Smith et al. U.S. Pat. No. 6,853,982 (hereinafter "Smith"). Claims 10 and 11 were rejected as being unpatentable under 35 U.S.C. § 103(a) over Smith in view of Fish et al. U.S. Pat. No. 6,035,294. Claims 13 and 14 were rejected as being unpatentable under 35 U.S.C. § 103(a) over Smith in view of Tso et al. U.S. Patent No. 6,385,602. Claims 24, 28-30, 35-37 and 39 were rejected as being unpatentable under 35 U.S.C. § 103(a) over Smith in view of Kortge et al U.S. Pat. No. 6,446,068.

II. Summary of March 29, 2007 Telephone Interview

During a telephone interview with Applicant and Applicant's attorneys on March 29, 2007, the Examiner and Applicant were unable to reach agreement regarding the applicability of Smith to the pending claims. In part, the Examiner is considering a session to be the "query" and the "item", a pairing of items in Smith to be the "first set of one or more properties" and also the "third set of one or more properties," and Smith's count of the number of sessions that two items have in common to be the claimed "distance function." Applicant explained that when the mapping of a Smith session to the claimed "query" and "item" is consistently followed, certain limitations are missing from Smith. In particular, Smith does not determine the "third set of one or more properties" and Smith does not teach the presently claimed "distance function." The rejection was maintained. The Examiner acknowledged, however, that the commonality computation of Smith correlates a higher number of sessions common to two items to a greater degree of similarity (lower degree of distance) between the two items, unlike certain

embodiments of the presently claimed invention, and indicated that an amendment directed to this distinction would be favorably considered. The Examiner also indicated that the claims in the form then pending could be subject to a rejection under 35 U.S.C. § 101 in the next Office Action.

III. Summary of Applicant's Response

The rejections of the claims are respectfully traversed. Independent claims 1, 31, 32, 33 and 38 have been amended. The claims have been amended to more particularly point out and distinctly claim the features of the claimed invention and to address the potential 35 U.S.C. § 101 rejection. No new matter has been added. Reconsideration of this application is respectfully requested.

IV. The Rejections of Claims 1-39

Applicant will focus this discussion on claim 1, which relates to a method for searching a collection of items, wherein each item in the collection has a set of properties.

While Applicant believes the previously pending claims were distinguishable over Smith, Applicant has added a limitation that further differentiates the presently claimed invention from the teachings of Smith. In particular, in one aspect of Applicant's disclosure, a higher number of items associated with all of the properties in the third set of properties correlates to a greater distance (less similarity). (*See, e.g.*, Specification, p. 6.) Claim 1 now recites with respect to the distance function: "wherein a higher number of items associated with all of the properties in the third set of properties indicates a greater distance between the query and the item and a lower number of items associated with all of the properties in the third set of properties indicates a smaller distance between the query and the item." As the Examiner recognized during the interview, this is contrary to the teaching of Smith. Smith teaches that a higher number of sessions in common indicates a greater degree of similarity. (See Column 19, lines 10-28.) Accordingly claim 1 is believed to be allowable for this further reason.

Applicant respectfully traverses the rejection made in the Office Action. In summary, Smith nowhere teaches, suggests, or motivates computing the distance between a query and an

item, i.e., according to the Examiner's analysis, between two "sessions" in Smith, in accordance with the present claims. In support of her assertion that Smith teaches a distance between a query and a session, the Examiner asserts that Smith teaches two sessions containing various items (Office Action, page 13). The Examiner also asserts that by "applying the step of computing the distance between two sessions at col. 18, lines 58-67, Popular_A and Item_B have two sessions in common (Office Action, page 13)." Applicant respectfully points out that Smith is not computing the distance between two sessions nor between a session and query (as interpreted in Smith). Instead, Smith is computing a distance, referred to in Smith as a commonality index (CI), between two items in part by showing how many sessions have viewed both of those two items. This is clear from the portion of Smith cited by the Examiner, because, for example, it states "the process counts for each (popular_item, other_item) pair, the number of sessions that are in common." Col. 18, lines 58-61, (emphasis added.) That is, Smith is computing the commonality of two items in part by producing the number of sessions they have in common. This is further clarified by the table 308A produced by step 308 of FIG. 3b of Smith, which illustrates pairs of items and the number of sessions that those pairs of items have in common. That Smith is computing the commonality between an item and an item is further illustrated by Smith's example that "POPULAR_A and ITEM_B have seventy sessions in common" (Smith, column 18, lines 64-65). Smith does not describe this count (e.g., seventy sessions) as having any meaning with respect to the commonality of two sessions. Because the Examiner's rejection depends on an interpretation of Smith where Smith is computing a distance between two sessions, and because Smith is not computing a distance between two sessions, the Examiner's rejection is improper.

However, even if the Examiner's interpretation of Smith did show or suggest a distance being computed between two sessions, which it does not, the computation used by Smith to indicate the commonality of two items and relied on by the Examiner as the "distance function" does not show or suggest the distance function recited in claim 1. Furthermore, the commonality computation of Smith does not show or suggest the distance function of claim 1 no matter what the commonality computation of Smith operates on (e.g., item v. item, session v. session, query v. session, etc.). The commonality computation of Smith counts the co-occurrences of two items directly to yield the number of sessions that they have in common. This is in contrast to

claim 1, which recites a distance function that “determines a distance between the query and the item in the collection based on the number of items in the collection that are associated with all of the properties in the third set of properties.” That is, the distance function of claim 1 determines which (and implicitly, the number of) properties that the first set of properties and the second set of properties have in common, which could be any subset of the properties in the first set or the second set, and also *further* determines the number of other items in the collection that also have those same properties. The Examiner has not provided any art that shows or suggests such a distance function.

In the Office Action, the Examiner provided a textual explanation of the rejection beginning on page 3. The Examiner then provided a table illustrating the “Examiner’s interpretation of Claim 1” compared to the “Examiner’s Interpretation based on the teaching of Smith” (Office Action, pages 13-14). This table more clearly identified which element of Smith was being mapped to which element of claim 1. In some cases, this analysis differed from the analysis beginning on page 3. In this discussion, Applicant has attempted to reconcile the differing analyses where possible or address arguments in the alternative. The following table combines the Examiner’s table with the actual language recited in claim 1. The bolded portions of claim 1 illustrate, as closely as possible, the language that the Examiner selected from claim 1. Applicant further notes that Session 1 and Session 2 do not occur in Smith; rather, Session 1 and Session 2 appear to have been constructed by the Examiner to supplement the teachings of Smith. For this further reason, the §102 rejection is improper.

Claim 1	Examiner's Interpretation based on the teachings of Smith (Office Action, page 14)
A method for searching a collection of items, wherein each item in the collection has a set of properties, comprising the steps of:	
[a] obtaining a query composed of a first set of one or more properties ; and	"for each other_item (See the pseudocode in Table 2, col 19) "popular_A, Other_Item_B in Session 1"
[b] obtaining a result based on applying a distance function to the query and an item in the collection having a second set of one or more properties , wherein	"increment common-session-count (See the pseudocode in Table 2, col. 19" "Session 2" "popular_A, Other_Item_B, Other_Item_C in Session 2"
[c] obtaining a result includes determining a third set of properties common to the first set of one or more properties and the second set of one or more properties , and	"Popular_A, Other_Item_B"
[d] the distance function determines a distance between the query and the item in the collection based on the number of items in the collection that are associated with all of the properties in the third set of properties.	"The number of session that are common to both items, col. 19. lines 1-29"

Element [a] recites "a query composed of a first set of one or more properties." In the table, the Examiner asserts that the "for each other_item" shows or suggests the query. Accordingly, to show or suggest a structure similar to claim 1, the "for each other_item" would have to be "composed of a set of one or more" of what the Examiner asserts to be properties. However, the Examiner then asserts that the properties are "popular_A, Other_Item_B" and that they are "in Session 1." On page 3, the Examiner asserted that the query corresponded to "(i.e., set of ITEM_A, ITEM_C...)", which is Session_A in Smith. Although the corresponding text of Smith refers to a "query log" that corresponds to a session, there is no indication that a session is a query. It is not clear whether a session, i.e., Session 1, is intended to be the query or

Popular_A, Other_item_B is intended to be the query and the Office Action appears to take both positions. Applicant's best interpretation is that the Examiner intends for each pairing of items in Session 1 to comprise a "query". Each Smith "query" is thus composed of two items. Applicant notes that while Smith teaches generating a count with respect to the pairing, the items "popular_A, Other_Item_B" are never explicitly combined as a "query" by Smith. Smith does not, for example, search the sessions for combinations of "popular_A, Other_Item_B". The pseudocode in Col. 19 makes this clear—Smith teaches performing the count by iterating through each session and for each other_item, increasing the respective common-session-count(popular_item, other_item) by 1. Thus, other than convenience, there is no inherent basis for interpreting this pairing as what is typically understood to be a "query."

Element [b] recites "obtaining a result based on applying a distance function to the query and an item in the collection having a second set of one or more properties." The Examiner interprets this step as computing a distance with respect to Session 2. On page 3, the Examiner asserts that the "item" is "(i.e. Session_B, Fig. 3B)". On pages 13-14, the Examiner asserts that the "item" is equated with Session 2, in particular. Session 2 is made up of several Smith items characterized by "popular_A, Other_Item_B, Other_Item_C in Session 2." The Examiner indicates "applying a distance function" to correlate to "increment common-session-count (See the pseudocode in Table 2, col. 19) " in Smith. This element (increment common-session-count) of Smith is computing a type of relationship between the "query" and a given session, namely, whether the pairing of items in the query are contained in Session 2. This logic could be viewed as a simplistic type of distance function. The outcome is binary, i.e., yes or no, 1 or 0. Also, for a given "query", i.e., pairing of items, with respect to a particular "item", i.e., Session 2, the respective count is incremented only once at most. This is the only "distance function" that Smith describes that would apply to the pairing of items and a particular session such as Session 2.

On page 3, the Examiner refers to the "result" as N_{common} , "that is the number of sessions in which both ITEM_A and ITEM_B were viewed", or the result of iterating the first Smith computation (increment common-session-count) over the entire collection of sessions. As Smith makes clear (*see, e.g.*, col. 19, lines 10-28), N_{common} is an indication of the similarity of ITEM_A

and ITEM_B. N_{common} has no particular meaning to Session 2 as it is the total for the pairing “popular_A, Other_Item_B” over all of the sessions considered. If the claimed “item” is equated to a specific session in Smith, N_{common} has no meaning as a distance function between the pairing and, for example, Session 2.

Applicant notes, however, that the Examiner’s interpretation, as best understood by Applicant, is not the actual teaching of Smith, but an alternate implementation not taught by Smith. Smith does not actually search Session 2 for “popular_A, Other_Item_B.” Similarly, and this point also has relevance to element [c], Smith does not directly determine whether “popular_A, Other_Item_B” is present in Session 2. In table 2, column 19, Smith teaches “for each session in sessions of popular-item, for each other_item in items of session, increment common-session-count(popular_item, other item).” In other words, Smith teaches iterating through each session that includes popular_A and incrementing the respective common-session-count for each item found. Accordingly, the pairing does not function as an independent combined entity, or as a “query” in Smith, Smith only indirectly computes a distance at best by incrementing the common-session-count, and as discussed further below, Smith does not determine a “third set of properties common to the query and the item”. The Office Action asserts on page 15, “the number of sessions share all the properties, Popular_A, Other_Item_B, should be understood as a distance between the two sessions.” There is no basis in Smith whatsoever to understand the number of sessions with Popular_A, Other_Item_B this way. In fact, as explained above, that would be contrary to the express teaching of Smith.

Element [c] recites, “obtaining a result includes determining a third set of properties common to the first set of one or more properties and the second set of one or more properties.” Smith does not teach determining a third set of properties. The Examiner apparently correlates this step to determining whether the pairing of items in the “query” are contained in a given session (Session 2). These steps are not, however, identical. Smith at best only makes an indirect, binary determination of whether A and B, i.e., the claimed first set of properties, are present in a given session (Session 2), i.e., the item. Smith does not teach “determining a third set of properties” common to the first set of properties and the second set of items, as set forth in

claim 1, which might also be only item_A or only item_B for some sessions. Since the Examiner has deliberately selected Session 2, which includes both A and B, it appears that the first set of properties itself is equivalent to the “third set of properties”, i.e., the common properties; but this is not a substitute for the explicit step of “determining a third set of properties”. Smith does not actually determine “a third set of properties”; the rejection in effect reads “the third set of properties” out of the claim. Accordingly, the rejection is deficient and Smith cannot anticipate the claim for this further reason.

Element [d] recites, “the distance function determines a distance between the query and the item in the collection based on the number of items in the collection that are associated with all of the properties in the third set of properties.” The Examiner has asserted that computing the “number of sessions that are common to both items” shows or suggests element [d] of claim 1 (although element [d] was incorrectly quoted in the table as reading “a distance between the query and *the items*”)(Office Action, page 14). This analysis breaks down with respect to consistency in at least two places and, further, is not supported by the teachings of Smith. First, even though element [d] recites “the distance function”, referring to the same distance function referenced in [b], the Examiner now effectively switches to a different distance function. Although the “distance function”, which operates with respect to a query and an item, was previously interpreted as a single step of incrementing the common_session_count with respect to a specific session, Session 2, the Examiner now refers to the collective total computed over many sessions as the “distance function”. Second, while the Examiner has previously indicated “the query” to be a pairing of items and “the item” to be a session, and in particular Session 2, the Examiner now assumes that the distance indicated is the distance between two Smith items, i.e., that the claimed “query” and “item” each map to “item” in Smith. For this second argument to be consistent with the Examiner’s arguments with respect to elements [a]-[c], the claim would have to say “between one property and another property”, but it does not. Alternatively, to read on the limitation, Smith would have to show (i) a distance between [a pairing of items] and a [session] by (ii) “the number of [sessions] in the collection that are associated with all of the [items] in the third set of [items].” However, these two aspects (i) and (ii) do not match up in Smith. At best, Smith shows a distance between a pairing of two “items” and a “session” by a

binary indication of whether the items are in the session, as described above. In other words, the claimed distance is actually computed differently, i.e., by the first Smith computation. And at best, the number of [sessions] in the collection that are associated with all of the [items] in the third set of [items], which is really the same as the first set of items in the Examiner's analysis, is indicative of a distance between an item and an item. This number, which involves carrying out the first Smith computation for a plurality of sessions, has no bearing on a distance between two "items" and a single "session," i.e., Session 2, according to Smith's clear teachings.

Moreover, Smith's method for measuring a similarity between one item and another item is completely different from the presently claimed method. In line with the missing element of claim 1, the Examiner stated that the "number of sessions that are common to both items" teaches element [d] of claim 1, however, element [d] is not merely calculating a number of things that are common to a query and an item. Instead, the calculation is "based on the number of items in the collection that are associated with all of the properties in the third set of properties." In other words, the presently claimed method does not merely count the number of features (i.e., properties in the present application or sessions in Smith) that the two references (i.e., the query and the item in the present application, or the two items in Smith) have in common. For example, in the claimed method, if a query and an item have 4 properties in common, and 3 items in the collection also have those 4 properties in common, then the distance between the query and the item is 3. This is clear from the claim language because "the distance function determines a distance between the query and the item in the collection based on the number of items in the collection with all the properties in the third set of properties." This is in contrast to Smith, where, at best, Smith would calculate the distance between the query and the item to be 4 because they have 4 properties in common (i.e., "the process counts, for each (popular_item, other_item) pair, the number of sessions that are in common" (Smith, col. 18, lines 58-60)). In other words, the presently claimed method and Smith are counting something different.

The Example cited by the Examiner illustrates the misreading of the claim and the corresponding misquoting of the Applicant's specification. The Examiner stated that:

According to the Applicant's specification, "The distance between Die Hard and Die Hard 2 is computed as follows. The intersection of the their property sets is {Star: Bruce

Willis, Genre: Action, Series: Die Hard). All three movies in the Die Hard series have all of the properties. Hence, the distance between the two movies is 3", ... a step of computing a distance between two items is merely a step of computing a number of items or a set of properties share all the properties, e.g. the distance between the two movies is 3." (Office Action, page 14).

Applicant asserts that the Example referred to by the Examiner does not support the Examiner's position that element [d] is taught by the "number of sessions that are common to both items." For example, in addition to 3 properties, asserted by the Examiner to be shared by Die Hard and Die Hard 2, the specification shows that Die Hard and Die Hard 2 also have the property "genre: Thriller" in common, for a total of 4 properties in common (Specification, page 14). As explained in lines 20-24 of page 14 of the specification, because in the entire collection, only 3 movies have those 4 properties in common, the "distance between the two movies is 3." That is, the distance is based on the number of moves "in the collection" that have the same properties in common that Die Hard and Die Hard 2 have in common. Like claim 1, it is not based merely on the number of properties that Die Hard and Die Hard 2 have in common, nor is it based, as alleged by the Examiner, on a number of a first variable type that are common to two variables of a second type (i.e., "a number of sessions that are common to both items"). Again, this is in contrast to Smith, where, at best, Smith would calculate the distance between Die Hard and Die Hard 2 to be 4 because they have 4 properties in common.

Similar arguments apply to independent claims 31, 32, 33, and 38 which include analogous limitations. Dependent claims 2-30, 34-37, and 39 each depend from one of the independent claims. The deficiencies of Smith are not overcome by Fish, Tso or Kortge. Accordingly, for at least these reasons, Applicant respectfully submits that the rejections of claims 1-39 should be withdrawn.

CONCLUSION

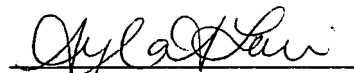
For the reasons stated above, Applicant respectfully submits that the rejections contained in the Office Action have been overcome and that the pending claims are in condition for allowance.

Applicant is appreciative that the 1449 forms accompanying the Information Disclosure Statements submitted in the application have been reviewed and returned. Certain entries were not initialed, however, and, for the clarity of the record, Applicant respectfully requests that the following entries, identified by the PTO stamped date of receipt, be duly marked and returned:

- (1) August 17, 2006: sheet 2 of 3, Cite No. "CA";
- (2) July 19, 2004: sheet 1 of 2, Document No. WO 01/67300;
- (3) August 20, 2002: sheet 1 of 1, "A1"; and
- (4) October 28, 2002: sheet 1 of 1, Document No. US2002/0091696.

A petition for a three-month extension of time is enclosed herewith. Please charge any fees that may be due, or credit any overpayment of the same, to Deposit Account No. 08-0219. The Examiner is encouraged to telephone the undersigned attorney for the Applicant to resolve any outstanding issues.

Respectfully Submitted,



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